TEXAS DIABETES

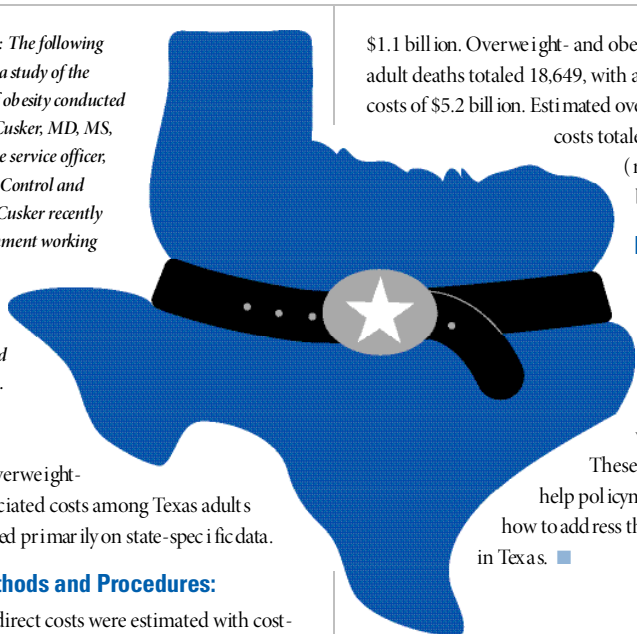
The Newsletter of the Texas Diabetes Council

SUMMER 2004

IN THIS ISSUE

Overweight/obesity cost Texas $10.5 billion during 2001

EDITOR'S NOTE: The following article summarizes a study of the economic burden of obesity conducted by Margaret E. McCusker, MD, MS, epidemic intelligence service officer, Centers for Disease Control and Prevention. Dr. McCusker recently completed an assignment working with the Texas Department of Health Bureau of Chronic Disease and Tobacco Prevention.



Objective:

To estimate overweight- and obesity-associated costs among Texas adults during 2001, based primarily on state-specific data.

Research Methods and Procedures:

Direct and indirect costs were estimated with cost-of-illness methods. Overweight (body mass index [BMI] 25-29.9 kg/m2) and obesity (BMI >30 kg/m2) prevalences were determined using self-reported height and weight from the 2001 Texas Behavioral Risk Factor Surveillance Survey. Diseases considered were cardiovascular disease, diabetes, osteoarthritis, asthma, sleep apnea, gallbladder disease, and several cancers. Overweight- and obesity-related attributable fractions were calculated for direct costs of health care and indirect costs of morbidity and mortality.

Results:

During 2001, overweight- and obesity-attributable direct healthcare costs totaled $4.2 billion, and accounted for 6.3 percent of healthcare expenditures among Texas adults. Indirect costs for lost productivity due to overweight- and obesity-related morbidity were $1.1 billion. Overweight- and obesity-attributable adult deaths totaled 18,649, with associated indirect costs of $5.2 billion. Estimated overweight and obesity costs totaled $10.5 billion (range: $9.1-$14.0 billion).

Discussion:

Overweight- and obesity-associated direct and indirect costs among Texas adults during 2001 were substantial. These cost estimates might help policymakers to determine how to address the obesity epidemic in Texas. ■

Texas Diabetes Council approves prevention and foot care algorithms

The Texas Diabetes Council has approved two new algorithms for healthcare professionals:

- Prevention and Delay of Type 2 Diabetes in Patients with Impaired Fasting Glucose (IFG) and Impaired Glucose Tolerance (IGT) in Children and Adults
- Diabetic Foot Care/Referral Algorithm

The algorithms can be downloaded from the Web at **http://www.tdh.state.tx.us/diabetes/healthcare/standards.htm.** ■

Texas Diabetes, the newsletter of the Texas Diabetes Program/Council, is published by the Texas Department of Health in Austin. Publication No. 45-11004

Please send news and information to:
Texas Diabetes
Texas Diabetes Program/Council
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3199

Phone: 512-458-7490
Fax: 512-458-7408
E-mail: donna.jones@tdh.state.tx.us
Internet: www.texasdiabetescouncil.org

Texas Diabetes Staff:
Jan Marie Ozias, PhD, RN, Director, Diabetes Program/Council

Donna Jones, MA, Editor

TEXAS DIABETES COUNCIL

Evaluating for insulin resistance: Guide for primary care clinicians

EDITOR'S NOTE: Pediatric overweight is increasingly common. In response to inquiries, the Texas Department of Health offers this resource information for primary care clinicians.

In children and teens (ages 2 to 20 years), body mass index (BMI)-for-age can be plotted on gender-specific growth charts and used for assessment. Overweight (BMI ≥ 95th percentile-for-age) or "at risk of overweight" (85th to <95th percentile) status in the absence of any related co-morbidity is a finding, not a disease.

Acanthosis nigricans (AN) is a skin marker. It is considered a finding or risk factor, not a disease. Youth referred for AN should be evaluated for several possible conditions, including insulin resistance. Insulin resistance indicates that cells have a reduced sensitivity to available insulin. It typically is associated with excess body weight, abdominal adiposity, elevated insulin levels, hypertension, and dyslipidemia.

Risk factors for insulin resistance include:

- Height/weight measurement > 85th percentile for gender and age and/or BMI (Growth charts at **http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm)**
- Family history (assess three generations for type 2 diabetes or cardiovascular disease)
- Ethnic/racial group (higher in African-American, Hispanic/Latino, American Indian, and Asian/Pacific Islander populations)
- Puberty (due to increased GH production)

Recommended clinical evaluation and laboratory tests include:

- Assess for symptoms of diabetes, e.g., polydypsia, nocturia, polyuria, etc.
- Evaluate for hypertension (blood pressure cuff appropriate for body size) and sleep apnea
- Document any acanthosis nigricans
- Measure fasting plasma glucose (Note: normal adult FPG <100 mg/dl; Impaired Fasting Glucose [IFG] = 100mg/dl [5.6 mmo/l] to 125 mg/dl [6.9 mmo/l])
- Obtain fasting lipid profile (total cholesterol, HDL-C, LDL-C, triglycerides)
- Review gestational age and birth weight
- Determine sexual maturity (Tanner) stage
- Assess females for irregular menses and/or hirsutism

Consider other laboratory tests:

- Oral glucose tolerance (1.75 gm/kg to maximum of 75 gram)
- Thyroid (thyroxin, TSH) if symptomatic, goiter detected, or short stature for age
- Liver transaminases (ALT and AST) to detect fatty liver in patients ≥ 95th percentile weight for height
- DHEAS, androstenedione, and testosterone if hirsute or menstrual irregularity

Management and follow-up may include:

- Patient and family education on the condition and risks for type 2 diabetes and/or cardiovascular disease
- Preventive measures for weight management through healthy lifestyle
  - Increased physical activity and exercise; limited daily sedentary activity
  - Nutrition counseling
- Medical follow-up every two years or depending on findings

Applicable Billing Codes

251.1	Hyperinsulinemia
256.4	Polycystic ovary syndrome
272.1	Hypertriglyceridemia
272.2	Mixed hyperlipidemia
272.4	Hyperlipidemia (unspecified)
277.7	Dysmetabolic Syndrome/Syndrome X
278.00	Overweight/obesity (unspecified)
278.01	Morbid obesity
401.1	Hypertension, essential, benign
401.9	Hypertension, essential, unspecified
626.0	Amenorrhea (primary or secondary)
701.2	Acanthosis nigricans
780.57	Apnea, sleep
790.2	Abnormal glucose tolerance test
790.6	Hyperglycemia
791.0	Microalbuminuria/proteinuria
V18.0	Diabetes, family history
V18.1	Hyperlipidemia, family history
V77.1	Diabetes, screening
V77.91	Cholesterol/HDL screen
V81.1	Hypertension screening

For clinical algorithm for Prevention and Delay of Type 2 Diabetes in Patients with Impaired Fasting Glucose and Impaired Glucose Tolerance (Publication #45-11825, April, 2004): www.texasdiabetescouncil.org (Click on "Health Care Professionals" link.)

For education information on risk reduction: www.ndep.nih.gov

For additional information on acanthosis nigricans: http://www.tdh.state.tx.us/diabetes/healthcare/research.htm

References: American Diabetes Association Diab Care 2004; 23:S11-S14; Texas Department of Health Disease Prevention News 2002;62(2)

For more information, contact Jan Ozias, PhD, RN, Texas Diabetes Program, at 512-458-7490 or jan.ozias@tdh.state.tx.us.

Texas diabetes fact sheet 2004

Editor's note: Epidemiologist Stacy Davlin, MPH, prepared the following up date on diab etes in Texas. Since 2001, the prevalence of diagnosed diab etes in adults 18 years or older increased from 6.2 p ercent (1,055,002) to 6.9 p ercent (1,068,130). During the same time, the estimated numb er of adults with undiagnosed diab etes decreased from 503,002 to 343,334.

Diabetes in children

Wh ile the number of ch ildren in Texas who have diabetes is unknown, the inc idence of type 2 diabetes has been increasing d ramatically in recent years. A number of stud ies ind icate that 8 to 45 percent of newly diagnosed ca ses in ch ildren is type 2. Most of these ch ildren are overwe ight or obese.[1]

Prevalence of diagnosed diabetes in adults 18 years and older

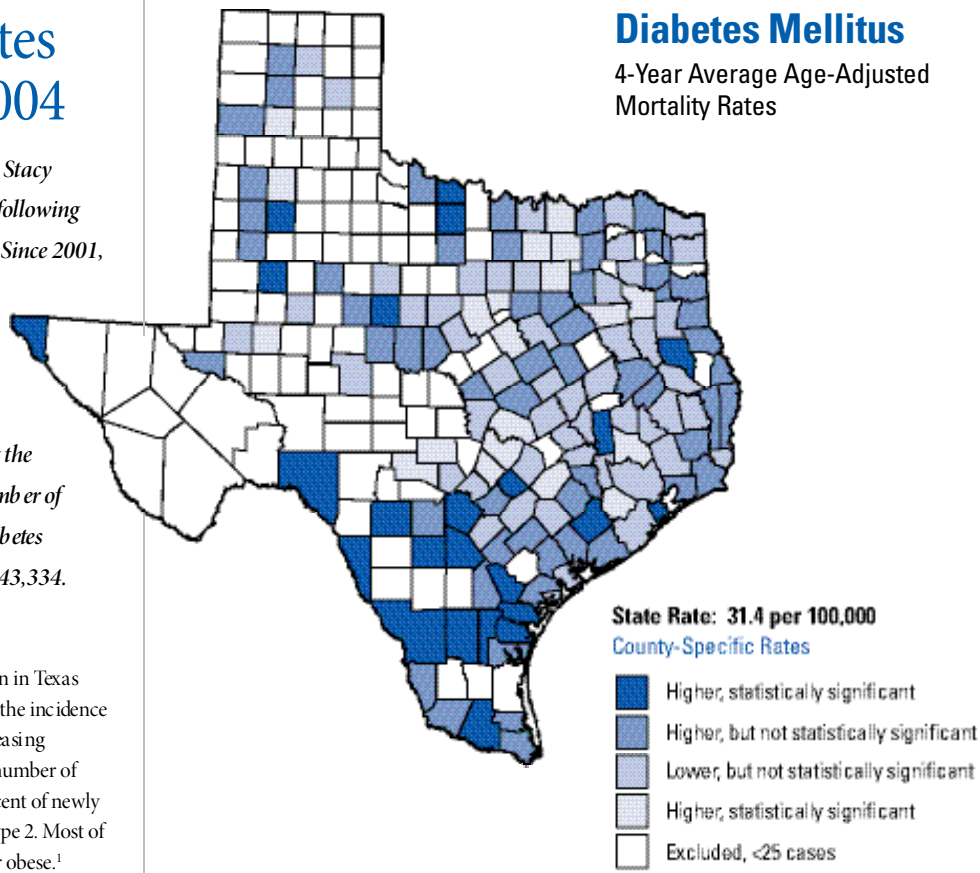
An esti mated 1.3 mill ion (8.1 percent) of adults in Texas have been diagnosed with diabetes (Texas BRFSS 2003).

Prevalence of undiagnosed diabetes in adults 20 years and older

Another esti mated 343,000 of adults in Texas are bel ieved to have und iagnosed diabetes (ba sed on NHANES age-adjusted prevale nce esti mate of 2.4).[2]

Deaths among persons with diabetes

According to 2002 death ce rti ficate data, diabetes is the si x th leading cause of death in Texas. It is the fourth lead ing cause of death in both Afr ican Ame ricans and Hispanics. 5,650 deaths were directly attributed to diabetes in 2002, and it was a contributing cause in an add itional 17,423 deaths. Diabetes is bel ieved to be under-reported on death ce rti ficates, both as a contr ibuting cond ition and as a cause of death.



For the combined years of 1999 th rough 2002, twe nty - four Texas counties had mortal ity rates that were sign i ficantly highe r statistically than the state as a whole (see Figure 1). The ave rage age-adjusted mortal ity rate for the state of Texas was 31.4 per 100,000 during the same per iod.

Prevalence of diagnosed diabetes by race/ethnicity in adults 18 and older (2003)

Number and percentage of people who reported being diagnosed with diabetes:

Non-Hispanic Wh ite .....683,000 (7.9 %)
Afr ican Ame r ican .....184,000 (10.5 %)
Hispan ic / Latino.....372,000 (7.8 %)
Other.....42,000 (7.3 %)

Prevalence of diagnosed diabetes by sex in adults 18 and older (2003)

Men.....613,000 (7.9 %)
Women.....660,000 (8.2 %)

Prevalence of diagnosed diabetes by age (2003)

Age 18-29 .....41,000 (1.1 %)
Age 30-44.....233,000 (4.7 %)
Age 45-64 .....628,000 (13.3 %)
Age 65+ .....352,000 (16.3 %)

People 18 years and older with diagnosed diabetes in Texas by race/ethnicity who were without any kind of health care coverage (2003)

Non-Hispanic Wh ite.....84,000 (12.4 %)
Afr ican Ame r ican .....36,000 (19.8 %)
Hispanic / Latino .....142,000 (38.2 %)

Footnotes

[1] Ame rican Diabetes Assoc iation. Type 2 Diabetes in Ch ildren. [Conse nsus Statement]. *Diabetes Care* 2000;23:381-9.

[2] Centers for Disease Control and Prevention. Prevale nce of Diabetes and Impaired Fasting Glucose in Adults, United States, 1999-2000. *MMWR*. September 5, 2003; 52(35); 833-837.

Diabetes continuing education in Corpus Christi, October 2

The Texas Diabetes Council is a sponsor for the South Texas Diabetes Consortium's conference, Saturday, October 2, 2004, at the Congressman Solomon P. Ortiz International Center in Corpus Christi.

The conference –*Hot Topics in Diabetes* – offers continuing education credit for physicians, nurses, pharmacists, and dietitians. It will feature presentations on:

- Standards of care
- Diabetes self-care
- Treatment options for insulin resistance, hyperandrogenism, and polycystic ovary syndrome
- Treatment of diabetes in pregnancy and the impact of the intrauterine environment on a child's future health
- Breastfeeding for prevention of obesity and diabetes
- Treatment of perimenopause and menopause in women with diabetes

The South Texas Diabetes Consortium includes the Coastal Bend Health Education Center, Corpus Christi Medical Center, CHRISTUS Spohn, the American Diabetes Association, Del Mar College, Driscoll Children's Hospital, and the Corpus Christi/Nueces County Health Department.

For more information on this year's *Hot Topics in Diabetes* conference, contact Carolyn Arnold at 361-825-2802. ■

An offer you can't refuse

The Texas Diabetes Council's publications for healthcare providers, diabetes patients, and the public are available free of charge. For a complete list of titles, visit www.texasdiabetescouncil.org and click on "Publications and Resources." Patient education materials are produced in both English and Spanish, and a number of booklets and brochures can be downloaded from the site. ■

Advice from the Centers for Disease Control:

Screening for undiagnosed diabetes

The Centers for Disease Control (CDC) recommends opportunistic screening within healthcare delivery systems and stresses that blood testing outside the clinic setting is not warranted. When people have signs or symptoms that suggest diabetes, clinicians should maintain a high index of suspicion and pursue diagnostic testing. This activity is considered to be an appropriate diagnostic effort and shows good clinical care. Screening applies only to people who are truly asymptomatic.

CDC scientists note that screening programs in community settings, such as outreach programs, health fairs, and shopping malls, have uniformly demonstrated low yield and poor follow-up. Such screening usually does not represent a good use of resources. Community settings are good places for using the Texas Diabetes Council's brochure "Could You Have Diabetes?" The brochure can be ordered online or downloaded and duplicated. For more information, visit **http://www.cdc.gov/diabetes/news/docs/screening.htm** and **http://www.tdh.state.tx.us/diabetes/publications/patient.htm.** ■

Council meets October 21 in Austin

The Texas Diabetes Council will meet in Austin, October 21. Meeting agendas and minutes are posted on the Council's website at **www.texasdiabetescouncil.org.** The Council's quarterly meetings are open to the public, and all interested persons are encouraged to attend. More information on the Council's membership appears on page 6 of this newsletter.

Diabetes Prevention Program details on the Web

The Diabetes Prevention Program (DPP) study was completed several years ago, but the benefits to healthcare providers and the public continue to accrue. Among these is the DPP Study Documents website (http://www.bsc.gwu.edu/dpp/index.htmlv-doc), which offers information related to the research aspects of the DPP.

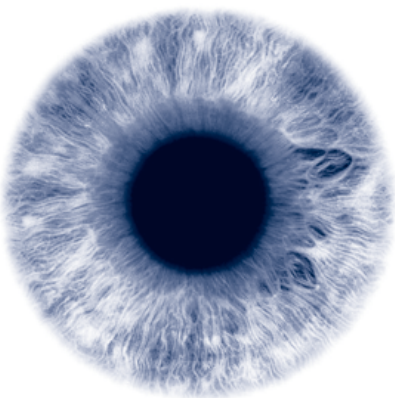
The Diabetes Prevention Program, conducted at 27 centers nationwide, was the first major trial to show that diet and exercise can effectively delay type 2 diabetes in a diverse American population of overweight people with impaired glucose tolerance (IGT). Participants randomly assigned to intensive lifestyle intervention reduced their risk of getting type 2 diabetes by 58 percent. On average, this group maintained their physical activity at 30 minutes per day, usually with walking or other moderate intensity exercise, and lost 5 to 7 percent of their body weight. ■

The prevalence of diabetic retinopathy among adults in the United States

*The Eye Diseases Prevalence Research Group**
Arch Ophthalmol. JAMA.*2004; 122:552-563.*

Objective: To determine the prevalence of diabetic retinopathy among adults 40 years and older in the United States.

Method: Pooled analysis of data from eight population-based eye surveys was used to estimate the prevalence, among persons with diabetes mellitus (DM), of retinopathy and of vision-threatening retinopathy defined as proliferative or severe nonproliferative retinopathy and/or macular edema. Within strata of age, race/ethnicity, and gender, U.S. prevalence rates were estimated by multiplying these values by the prevalence of DM reported in the 1999 National Health Interview Survey and the 2000 U.S. Census population.



Results: Among an estimated 10.2 million U.S. adults 40 years and older known to have DM, the estimated crude prevalence rates for retinopathy and vision-threatening retinopathy were 40.3 percent and 8.2T, respectively. The estimated U.S. general population prevalence rates for retinopathy and vision-threatening retinopathy were 3.4 percent (4.1 million persons) and 0.75 percent (899,000 persons). Future projections suggest that diabetic retinopathy will increase as a public health problem, both with aging of the U.S. population and increasing age-specific prevalence of DM over time.

Conclusion: Approximately 4.1 million U.S. adults 40 years and older have diabetic retinopathy; 1 of every 12 persons with DM in this age group has advanced, vision-threatening retinopathy.

** The Writing Committee members for the Eye Diseases Prevalence Research Group who had complete access to the raw data needed for this report and who bear authorship responsibility for this report are John H. Kempen, MD, PhD (chairperson); Benita J. O'Colmain, MPH; M. Cristina Leske, MD, MPH; Steven M. Haffner, MD; Ronald Klein, MD, MPH; Scott E. Moss, MA; Hugh R. Taylor, AC, MD; Richard F. Hamman, MD, DrPH; Sheila K. West, PhD; Jie Jin Want, Mmed, MapplStat, PhD; Nathan G. Congdon, MD, MPH; and David S. Friedman, MD, MPH. The Writing Group for this article has no relevant financial interest in this article.* ■

Trends in blood pressure among children and adolescents

Paul Muntner, PhD; Jiang He, MD, PhD; Jeffrey A. Cutler, MD; Rachel P. Wildman, PhD; Paul K. Whelton, MD, MSc. JAMA. *2004;291:2107-2113.*

Context: The prevalence of overweight among children and adolescents increased between 1988 and 2000. The change in blood pressure among children and adolescents over that time and the role of overweight is unknown.

Objective: To examine trends in systolic and diastolic blood pressure among children and adolescents between 1988 and 2000.

Design, setting, and population: Two serially conducted cross-sectional studies using nationally representative samples of children and adolescents, aged 8 to 17 years, from the third National Health and Nutrition Examination Survey (NHANES III) conducted in 1988-1994 (n=3496) and HNANES 1999-2000 (n=2086).

Main outcome measures: Systolic and diastolic blood pressure levels.

Results: In 1999-2000, the mean (SE) systolic blood pressure was 106.0 (0.3) mm Hg and diastolic blood pressure was 61.7 (0.5) mm Hg. After adjustment for age, mean systolic blood pressure was 1.6 mm Hg higher among non-Hispanic black girls (P=.11) and 2.9 mm Hg higher among non-Hispanic black boys (P<.001) compared with non-Hispanic whites. Among Mexican Americans, girls' systolic blood pressure was 1.0 mm Hg higher (P=.21) and boys' was 2.7 mm Hg higher (P<00.1) compared with non-Hispanic whites (P<.001). With further adjustment for body mass index, these differences were attenuated. After age, race/ethnicity, and sex standardization, systolic blood pressure was 1.4 (95 percent confidence interval [CI], 0.6-2.2) mm Hg higher (P<.001) and diastolic blood pressure was 3.3 (95 percent CI, 2.1-4.5) mm Hg higher in 1999-2000 (P<.001) compared with 1988-1994. With further adjustment for differences in the body mass index distribution in 1988-1994 and 1999-2000, the increase in systolic blood pressure was reduced by 29 percent and diastolic blood pressure was reduced by 12 percent.

Conclusions: Blood pressure has increased over the past decade among children and adolescents. This increase is partially attributable to an increased prevalence of overweight.

Author affiliations: Departments of Epidemiology (Drs. Muntner, He, Wildman, and Whelton) and Medicine (Drs. Muntner, He, and Whelton), School of Public Health and Tropical Medicine, School of Medicine, Tulane University, New Orleans, LA; and Division of Epidemiology and Clinical Applications, National Heart, Lung, and Blood Institute, Bethesda, MD (Dr. Cutler). ■

The Texas Diabetes Council, the Texas Department of Health, and the Department of State Health Services

The functions of the Texas Department of Health (TDH) will be performed by the Texas Department of State Health Services (DSHS) beginning September 1, but the activities of the Texas Diabetes Council, which is administratively attached to TDH, will continue without interruption.

The re-alignment of TDH functions is part of the consolidation of the state's 12 health and human services agencies mandated by the Texas Legislature in House Bill 2292 during its 2003 session. DSHS also will perform functions formerly under the purview of the Department of Mental Health and Mental Retardation (mental health functions), Commission on Alcohol and Drug Abuse, and the Health Care Information Council.

For more information on the consolidation, visit **http://www.hhsc.state.tx.us/Consolidation/Consl_home.html.** ■

TEXAS DIABETES COUNCIL

Texas Diabetes Council Members

Council members are appointed by the Governor and confirmed by the Senate. Membership includes a licensed physician, a registered nurse, a registered and licensed dietitian, a person with experience in public health policy, three consumer members, four members from the general public with expertise or commitment to diabetes issues, and five state agency representatives who are non-voting members.

For information on the Texas Diabetes Program/Council, contact:

Jan Marie Ozias, PhD, RN, Director
Diabetes Program/Council
Texas Department of Health

1100 West 49th Street
Austin, TX 78756-3199
Phone: 512-458-7490
Fax: 512-458-7408

TEXAS DIABETES

The Newsletter of the Texas Diabetes Council

TEXAS DIABETES COUNCIL
TEXAS DEPARTMENT OF HEALTH
1100 WEST 49TH STREET
AUSTIN, TX 78756-3199

PRSRT STD
U.S. Postage
PAID
Austin, Texas
Permit No. 28